

What is claimed is:

1           1.     A process for preparing optical fiber, comprising the step of:  
2                 drawing fiber from a preform comprising a silica body, the body formed  
3     by a process including the step of, prior to sintering the body, treating the  
4     body at a temperature ranging from 300 to 900°C with a gaseous mixture  
5     comprising one or more non-oxygenated sulfur halides.

1           2.     The process of claim 1, wherein the body is selected from an  
2     overcladding tube and a substrate tube.

1           3.     The process of claim 2, wherein the body is formed by a sol-gel  
2     process.

1           4.     The process of claim 1, wherein the temperature of treatment  
2     ranges from 400 to 800°C.

1           5.     The process of claim 4, wherein the temperature of treatment  
2     ranges from 600 to 700°C.

1           6.     The process of claim 1, wherein the treatment is performed for a  
2     period of at least one hour.

1           7.     The process of claim 6, wherein the treatment is performed for a  
2     period of at least two hours.

1           8.     The process of claim 1, wherein the one or more sulfur halides  
2     comprise one or more sulfur chlorides.

1           9.     The process of claim 8, wherein the one or more sulfur chlorides  
2     comprise at least one of sulfur monochloride and sulfur dichloride.

1           10.    The process of claim 1, wherein the gaseous mixture further  
2   comprises at least one of nitrogen, air, helium, neon, and argon.

1           11.    The process of claim 1, wherein the one or more sulfur halides  
2   are generated by reaction of sulfur present in the body with halides flowed  
3   over the body.

1           12.    The process of claim 1, wherein the treatment performs at least  
2   one of: reducing the size of at least a portion of refractory metal oxide  
3   particles in the body and reducing the concentration of refractory metal oxide  
4   particles in the body.

1           13.    The process of claim 12, wherein the particles include at least  
2   one of chromia and zirconia.

1           14.    The process of claim 1, wherein the treatment reduces the  
2   concentration of water and hydroxyl groups in the body.

1           15.    The process of claim 1, wherein the gaseous mixture comprises  
2   0.1 to 100 vol.% of the one or more sulfur halides.

1           16.    The process of claim 15, wherein the gaseous mixture comprises  
2   about 6 to about 7 vol.% of the one or more sulfur halides.

1           17.    The process of claim 1, wherein the body is subjected to a  
2   treatment with a gas comprising chlorine prior to the treatment with the one  
3   or more sulfur halides.

1           18.    The process of claim 17, wherein the gaseous mixture  
2    comprising one or more sulfur halides comprises about 1 to about 2 vol.% of  
3    the one or more sulfur halides.

1           19.    The process of claim 17, wherein the chlorine treatment reduces  
2    the concentration of water and hydroxyl groups in the body.

1           20.    The process of claim 17, wherein the chlorine treatment  
2    performs at least one: of reducing the size of at least a portion of chromia  
3    particles in the body and reducing the concentration of chromia particles in  
4    the body.

1           21.    The process of claim 1, wherein the body is subjected to  
2    treatment with a gas comprising oxygen subsequent to the treatment with  
3    the one or more sulfur halides.

1           22.    A process for preparing optical fiber, comprising the step of:  
2           drawing fiber from a preform comprising a sol-gel silica tube, the tube  
3    formed by a process including the step of, prior to sintering the tube, treating  
4    the tube at a temperature ranging from 300 to 900°C with a gaseous mixture  
5    comprising one or more non-oxygenated sulfur chlorides.

1           23.    The process of claim 22, wherein the temperature of treatment  
2    ranges from 400 to 800°C.

1           24.    The process of claim 23, wherein the temperature of treatment  
2    ranges from about 600 to about 700°C.

1           25.    The process of claim 22, wherein the treatment is performed for  
2    a period of at least two hours.

1           26.    The process of claim 22, wherein the one or more sulfur  
2 chlorides comprise at least one of sulfur monochloride and sulfur dichloride

1           27.    The process of claim 22, wherein the one or more sulfur  
2 chlorides are generated by reaction of sulfur present in the tube with chlorine  
3 flowed over the tube.

1           28.    The process of claim 22, wherein the treatment performs at least  
2 one of: reducing the size of at least a portion of refractory metal oxide  
3 particles in the tube and reducing the concentration of refractory metal oxide  
4 particles in the tube.

1           29.    The process of claim 22, wherein the gaseous mixture comprises  
2 0.1 to 100 vol.% of the one or more sulfur chlorides.

1           30.    The process of claim 29, wherein the gaseous mixture comprises  
2 about 6 to about 7 vol.% of the one or more sulfur chlorides.

1           31.    The process of claim 22, wherein the tube is subjected to a  
2 treatment with a gas comprising chlorine prior to the treatment with the one  
3 or more sulfur chlorides.

1           32.    The process of claim 22, wherein the tube is subjected to  
2 treatment with a gas comprising oxygen subsequent to the treatment with  
3 the one or more sulfur chlorides.

1           33.    The process of claim 22, where the tube is selected from an  
2 overlapping tube and a substrate tube.